DECISION-MAKING PROCESSES AND THE ENERGY SECTOR

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On The Environment And The Economy

ROUND TABLE

PREFACE

"Decision Making Processes and the Energy Sectors" was prepared by Glenn Bridges at the request of the British Columbia Round Table on the Environment and the Economy. It is part of a series of background reports dealing with issues which Round Table considered important to the development of a sustainable development strategy in British Columbia. It is intended to provide information that will assist the dialogue between the Round Table and the public.

The Round Table has not endorsed the report. The information provided and conclusions reached in this document are those of the author.

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EXECUTIVE SUMMARY

Decision-Making Processes And The Energy Sector

This background report focuses on decision-making processes for the energy sector.

The report presents information on energy supply and consumption in British Columbia, identifying oil as the only major source of imported energy.

It outlines both federal and provincial jurisdictions in the sector, and describes in detail the Energy Project Review Process that is used by the Province to evaluate and approve proposed energy projects.

The author compares the Energy Project Review Process with the Mine Development Review Process and the Major Project Review Process, all of which are used by the Province to evaluate development proposals, and suggests that a single environmental review process should be considered. A variety of other suggestions are made for improvements.

PURPOSE OF PRESENTATION

- Provide an overview of government decision-making processes as they apply to the energy sector in British Columbia and identify areas of potential improvement.

ORGANIZATION OF PRESENTATION

- Introduction
- British Columbia energy supply and demand
- Federal jurisdiction related to energy sector
  - National Energy Board
  - Environment Canada
- Provincial jurisdiction related to energy sector
  - Energy Project Review Process
  - Mine Development Review Process
  - Major Project Review Process
- Decision-making processes: areas of potential improvement
  - implementation of environmental objectives
  - energy project review process
  - federal/provincial coordination
- Related issues.

ENERGY AND ENVIRONMENTAL LINKAGES

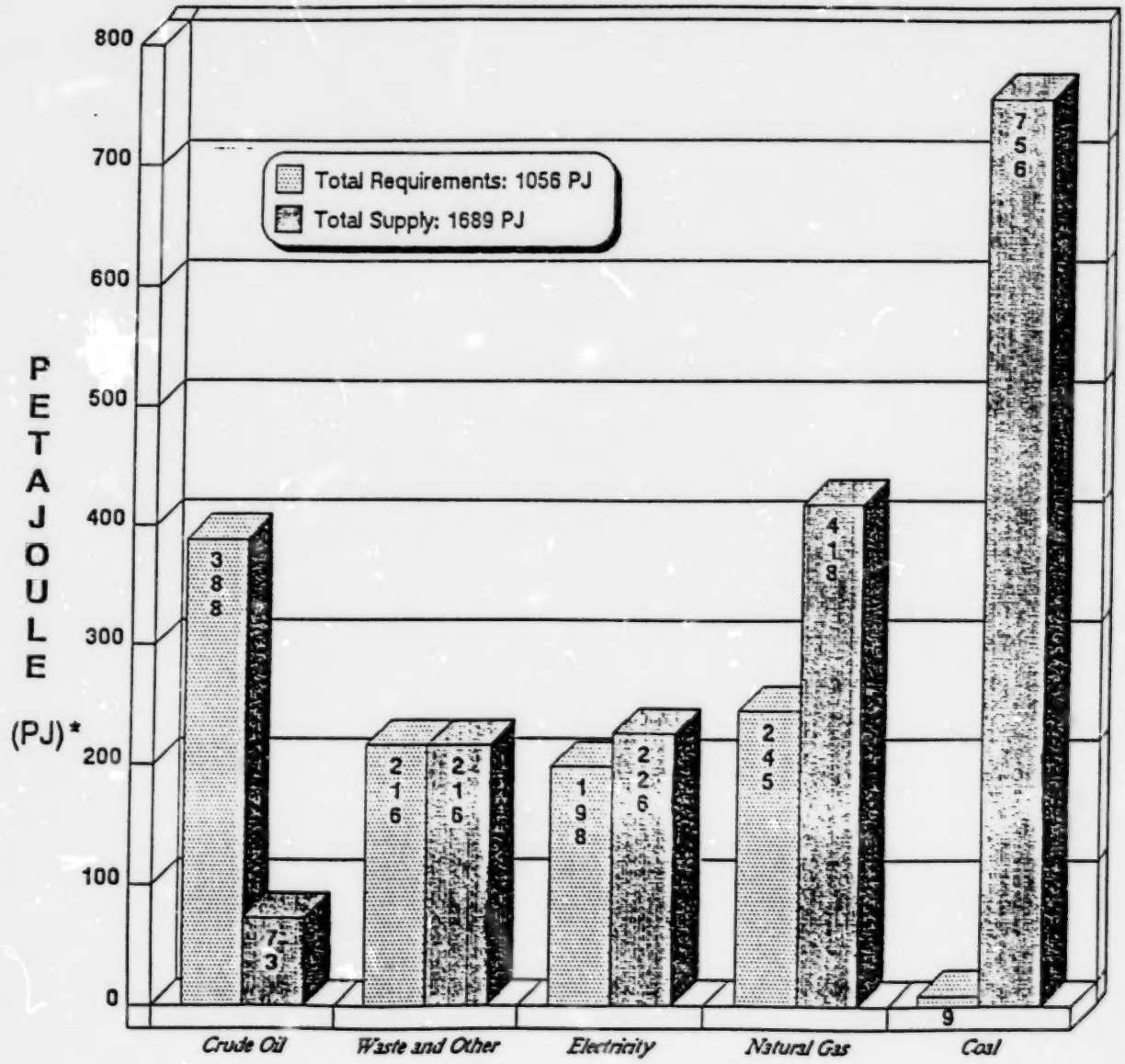
- The impacts of energy development and use affect the health and safety of people throughout the world, including the survival of plant and animal habitats and the stability of the earth's climate and atmosphere.

- Energy impacts go beyond the jurisdiction where the energy is produced or consumed - the Chernobyl disaster renewed world concern over the issue of nuclear safety; the Exxon Valdez and recent, Mega Borg oil spills have emphasized the risk of oil tanker shipments; global warming and air quality continue to be major problems associated with the world's expanding use of fossil-fuels.

- The environmental consequences of energy are present in all phases of the energy cycle: from the methods to generate energy (hydroelectric, nuclear and thermal-generation); to the ways it is transported (oil tankers, high-voltage transmission lines, pipelines); processed (oil refining, gas processing plants), stored (hydro-reservoirs, underground gas storage) and used (combustion engines, space-heating, woodstoves and electric appliances).

Figure 1: Energy Supply and Requirements (1990)

(petajoules*)



* 1 Petajoule is equivalent to the total energy consumed in Vancouver each day (163,500 barrels of oil; 278 gigawatt hours of electricity; 900 million cubic feet of natural gas). Source: Ministry of Energy, Mines and Petroleum Resources.

Figure 2: Energy Consumption by Sector (1990)
(petajoules*)

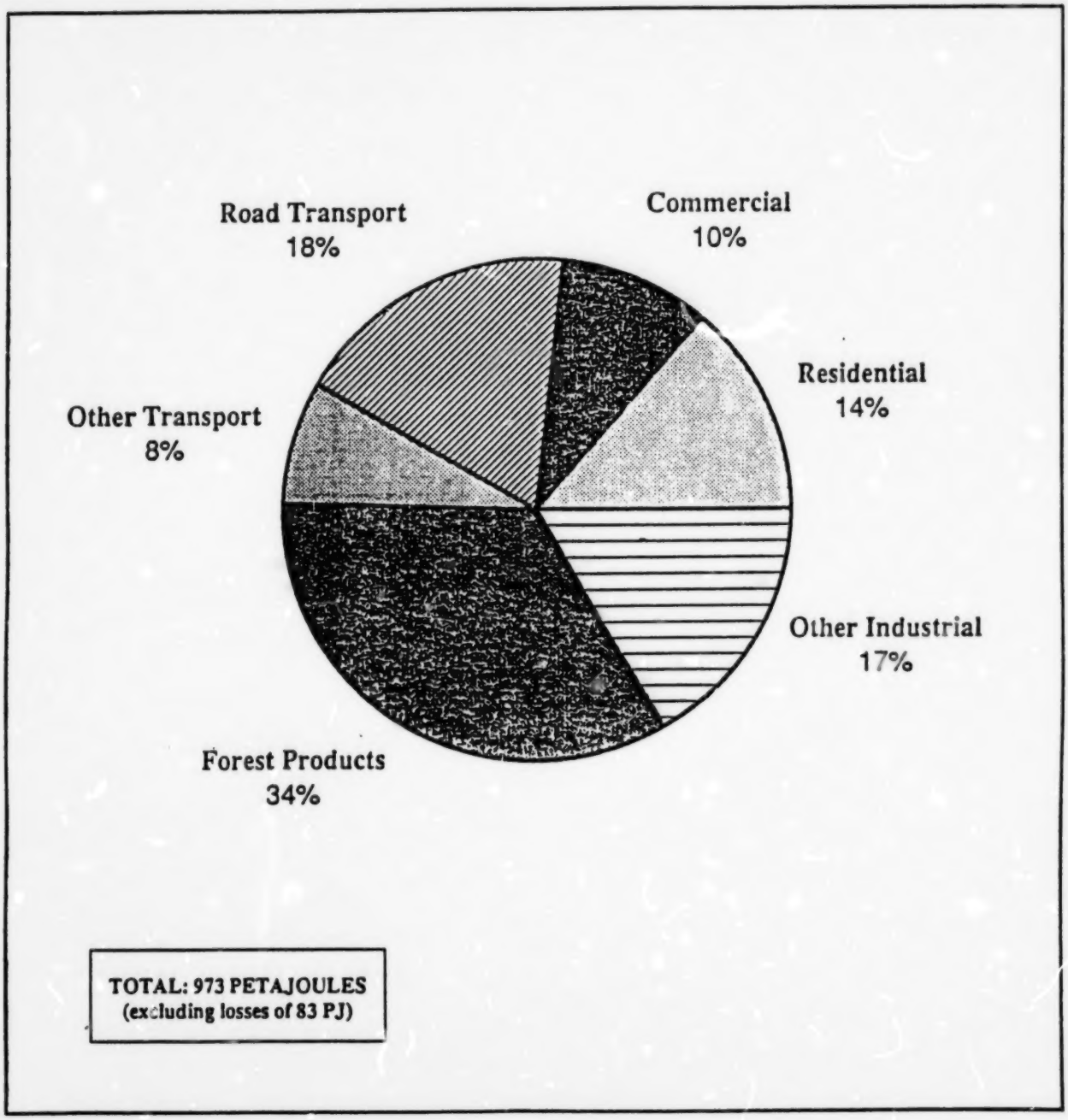
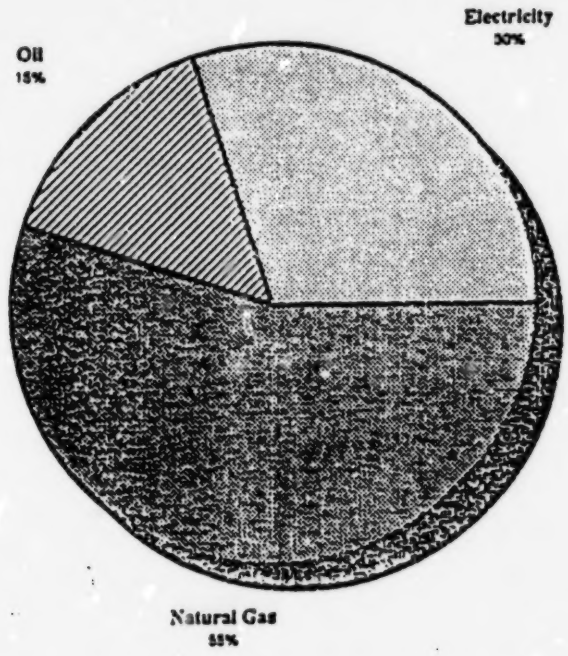
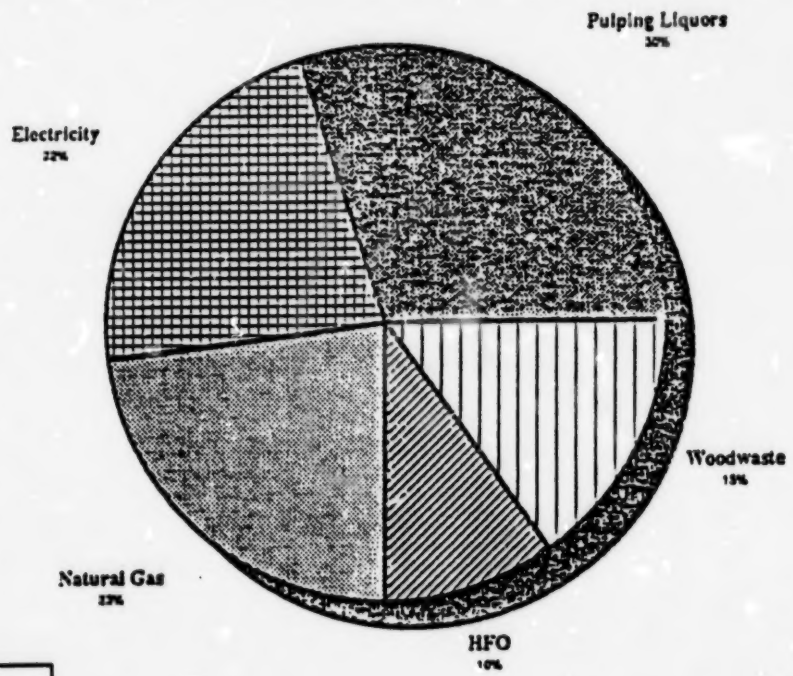


Figure 3: Residential Energy Consumption by Fuel Type



TOTAL: 136 PJ

Figure 4: Industrial Energy Consumption by Fuel Type



TOTAL: 491 PJ

Figure 5: Oil Consumption by Sector

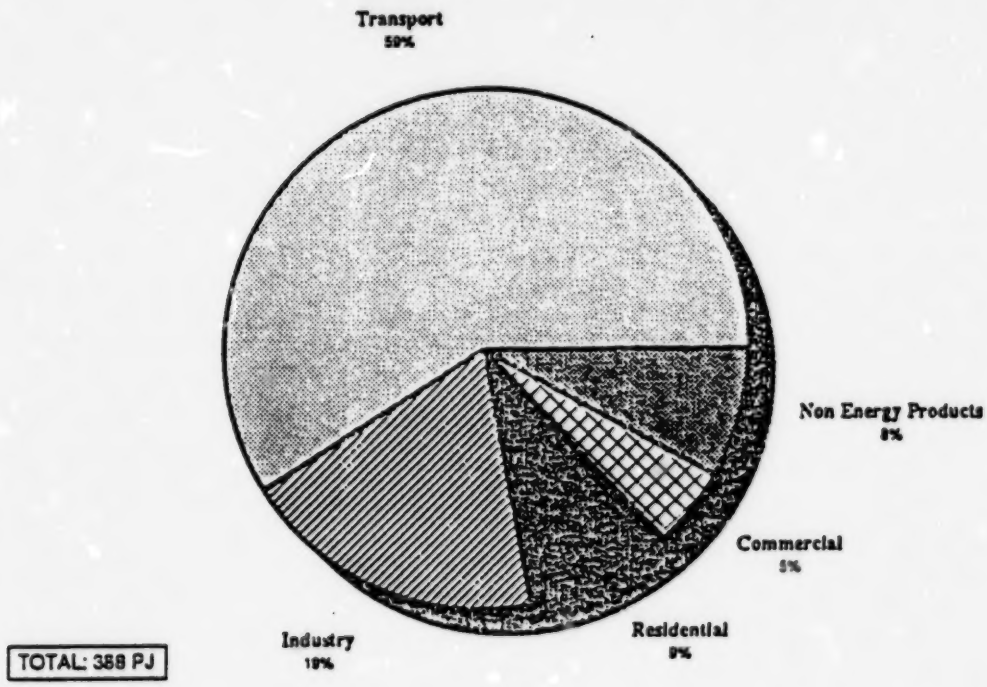


Figure 6: Natural Gas Consumption by Sector

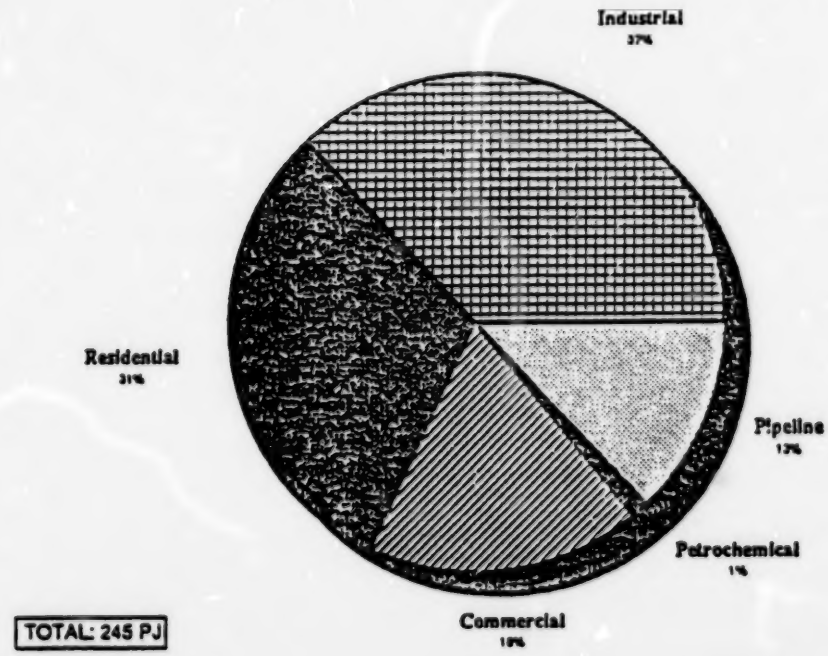
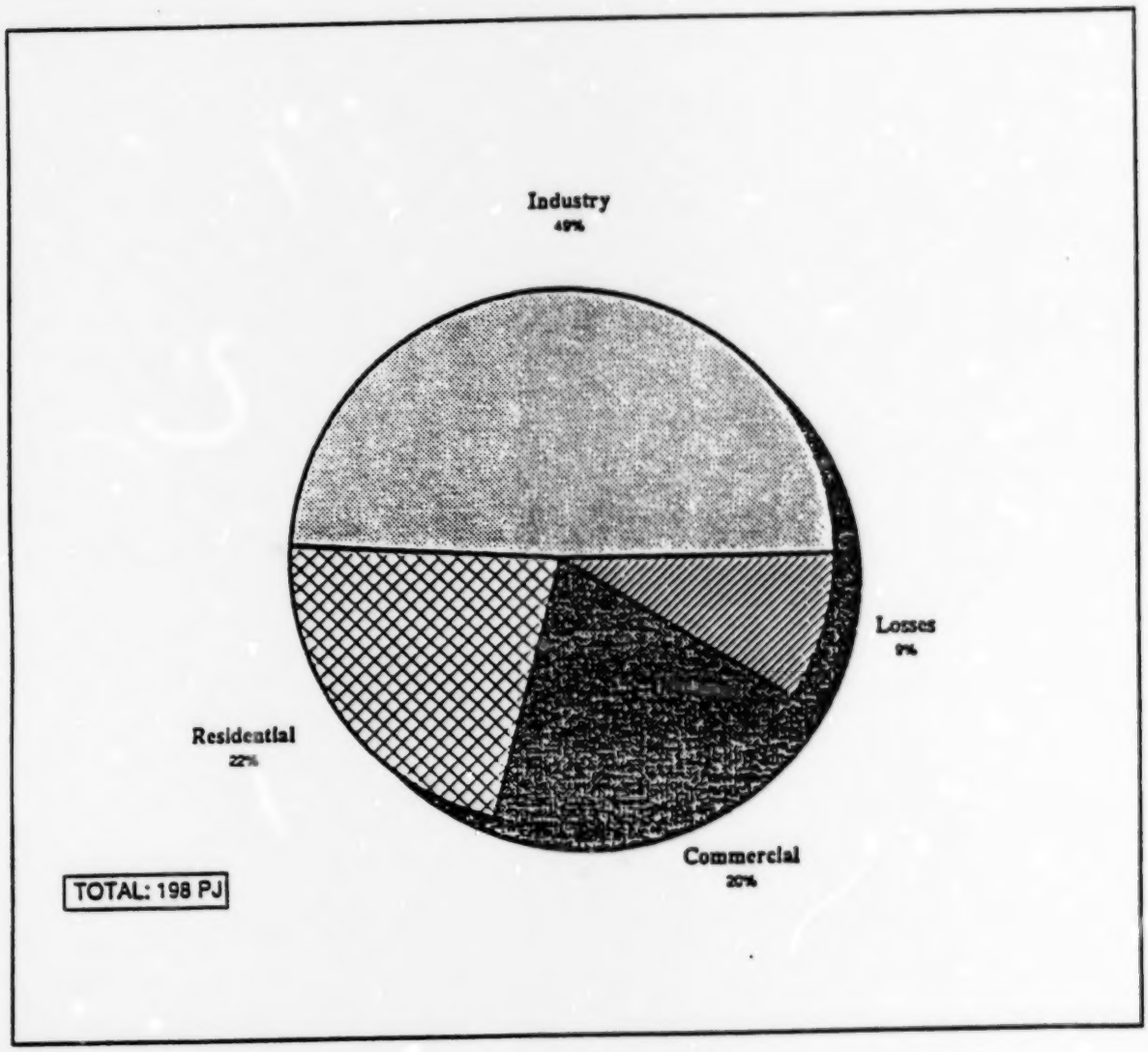


Figure 7: Electricity Consumption by Sector



FEDERAL JURISDICTION RELATED TO ENERGY SECTOR

National Energy Board

- International and interprovincial matters, such as energy trade and facilities are regulated by the National Energy Board Act, administered by the National Energy Board (NEB).

- NEB regulates exports through surplus determination procedures (to ensure energy security) and price tests - since mid-1980's the trend toward energy deregulation and the implementation of Free Trade Agreement has led to a relaxation of export procedures.

Environment Canada

- As a result of the Rafferty-Alameda court decisions, the federal government is now obligated to conduct environmental assessments of all federally related projects, through its Environmental Assessment Review Process (EARP) which is currently a non-legislative process.

- Under a new bill released June 18, 1990; the Canadian Environmental Assessment Act (CEAA), it is being proposed that all projects that are initiated by a federal agency or Crown Corporation, situated on federal land, requiring federal approvals or permits, receiving federal assistance, or involving federal statues such as, fisheries, water, air, will require mandatory federal environmental assessments.

- The federal bill is proposing to increase public participation, clarify legal procedures, avoid duplication by promoting joint panels, introduce mediation and monitoring--it is expected the proposed CEAA will become law by the end of 1991.

- Implications are the majority of energy projects, i.e. thermal-power and hydroelectric plants, smelters (eg. Wooding ferrochromium) will require federal environmental assessments.

PROVINCIAL JURISDICTION RELATED TO ENERGY SECTOR

British Columbia has three project review processes that directly or indirectly involve energy production, transmission or use.

(1) Energy Project Review Process - legislated process

(2) Mine Development Review Process - non-legislated review process

(3) Major Project Review Process - non-legislated review process

1. Energy Project Review Process

- The British Columbia Utilities Commission Act provides for the regulation of public utilities such as B.C. Hydro and investor-own-utilities such as West Kooteney Light and Power and natural gas utilities, such as B.C. Gas, Columbia, PNG, (Westcoast Energy is regulated by the National Energy Board).

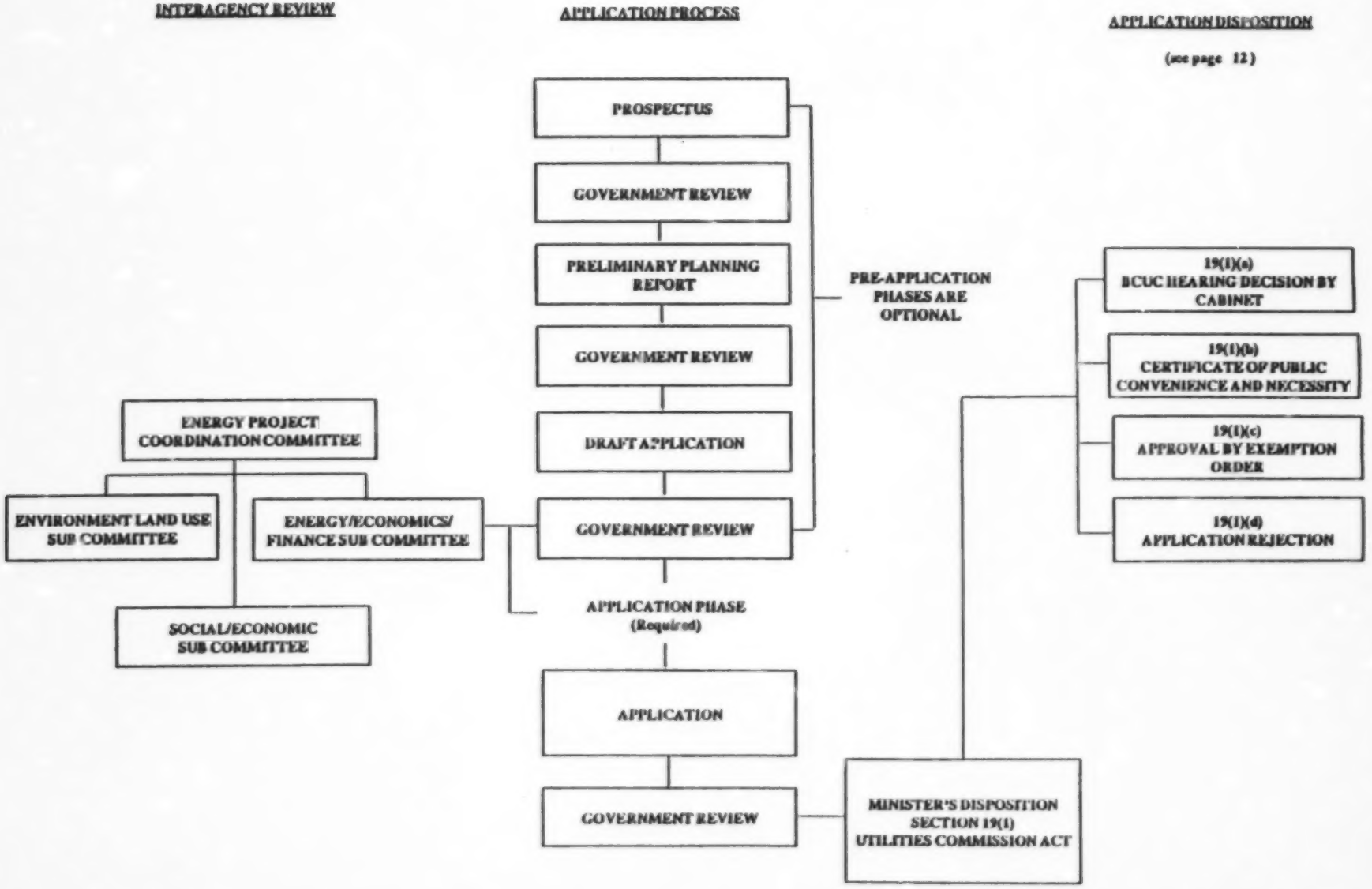
- The Act empowers the Minister of Energy, Mines and Petroleum Resources and the British Columbia Utilities Commission to review and approve energy projects which generate, transport, store and use large quantities of energy including the removal of energy resources from the Province.

- The Act established the Energy Review Process which applies to "regulated projects", which are projects that involve:

  - electricity generation projects of 20 MW or more;
  - transmission lines of 500 kV or more;
  - pipelines capable of transporting 16 petajoules of energy per year;
  - facilities capable of storing or shipping 3 petajoules of energy;
  - facilities capable of using 3 petajoules per year;
  - projects designated by cabinet.

- The following diagram describes the application, review and disposition process under the Energy Project Review Process.

ENERGY PROJEC REVIEW PROCESS: FLOWCHART



ENERGY PROJECT REVIEW PROCESS

Objectives

- Early identification and management of environmental, economic and community impacts.
- Guidance to proponent in obtaining permits and licenses and coordination and realistic staging of government regulatory approvals.
- Determination of financial and economic viability where public sector investment or significant impact management programs are involved.
- Coordination by inter-agency steering committees providing one major contact point between proponents and government.
- Proponent initiatives consultation process - British Columbia Utilities Commission may be asked to hold Public Hearings.

Information Requirements

- Applicant and project description
- Project justification (technical, economic and financial feasibility)
- List of approvals and permits (water, waste, gas utility, boiler/pressure)
- Site/route selection (alternatives, mitigation and compensation proposals)
- Biophysical/land use information (air quality, vegetation, agriculture, forests, recreational resources, aesthetics, water, wildlife, land use)
- Socio-economic information (labour requirements, impacts upon social services, financial implications upon local government).

Approval

- Energy Project Certificate:

  - approval for construction granted by Cabinet;
  - contains terms and conditions.

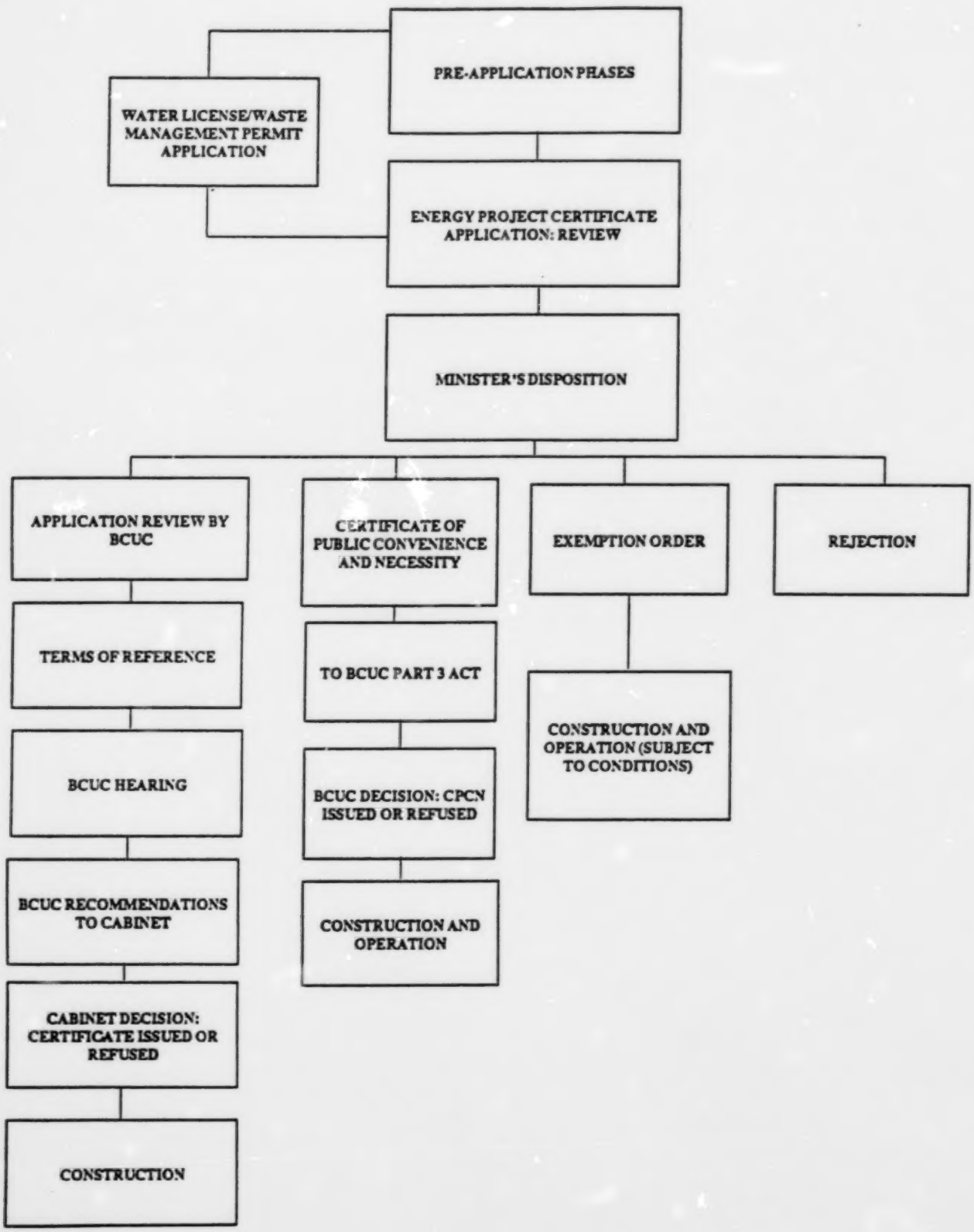
- Energy Operation Certificate:

  - approval for operation granted when conditions are implemented.

- Ministers' Order:

  - for approval of projects that have not been subject to hearings;
  - contains terms and conditions;
  - signed by both the Minister of Environment and the Minister of Energy, Mines and Petroleum Resources.

ENERGY PROJECT: DISPOSITION OPTIONS



2. MINE DEVELOPMENT REVIEW PROCESS

- The Mine Development Review Process (MDREP) is a non-legislative procedure for new and expanded mining ventures, administered through the Mine Development Steering Committee under direction of the newly created Cabinet Committee on Sustainable Development.

- The Mine Development Steering Committee (consisting of officials from the Ministries of Energy, Environment, Municipal Affairs, Transportation and Highways, Regional and Economic Development and Native Affairs) has recently delegated the review of small projects to regional committees, known as the Regional Mine Development Review Committee.

- The goals of the MDRP are similiar to those of the Energy Project Review Process: to ensure the projects are technically sound and publically acceptable and have environmental, socio-economic and community issues that are adequately addressed and the process expedite the review and decision-making in order to minimize project delays.

3. MAJOR PROJECT REVIEW PROCESS

- The Major Project Review Process (MRED) introduced in 1989, is a non-legislated review procedure supported by the Environment and Land Use Act and Environmental Management Act, administered through a Major Project Steering Committee, co-chaired by the Ministries of Regional and Economic Development and Environment.

- The Steering Committee includes representation from the Ministries of Forest, Energy, Mines and Petroleum Resources, Municipal Affairs, Environment Canada and the Federal Environmental Assessment Review Office (FEARO).

- Major Projects which previously fell outside of existing review processes, generally fall into four categories:
  (1) pulp and paper production,
  (2) mineral smelting and refining,
  (3) chemical production, and
  (4) major ports and marinas.

- The Major Project Review Process follows a similiar process to the Energy Project and Mine Development Review Process.

DECISION-MAKING PROCESSES: AREAS OF POTENTIAL IMPROVEMENT

Implementation of Environmental Objectives:

- Although the Energy Project Review Process is one of the best energy review procedures in Canada, it depends upon timely input from all Ministries to provide direction and decisions to avoid costly delays to the project proponent.

- Recently proposed natural gas and coal-fired generating projects have pointed out the need for clearly defined environmental objectives for project planning purposes, which is critical to the financial feasibility.

- The process of setting clear quantitative environmental objectives must be established and understood by all government officials and project proponents.

Energy Project, Mine Development and Major Project Review Processes

- The Ministry of Energy, Mines and Petroleum Resources (MEMPR) is currently reviewing its Energy Project Review Process.

- The Mineral Resources Division of MEMPR is considering legislation to support its Mine Development Review Process.

- The Ministries of Environment and Regional and Economic Development are similiarly considering legislation to support their Major Project Review Process.

- It is suggested that consideration be given to having one legislated environmental review process, similiar to the proposed federal Canadian Environmental Assessment Act, (CEAA), that would maintain line ministry responsibilities.

Federal/Provincial Environmental Coordination:

- The introduction of the recent federal environmental assessment bill suggests that provincial review procedures consider integrating federal requirements to minimize regulatory duplication.

- In cases of joint mandates and jurisdictions, only one review should be conducted, taking into account the requirements of all affected jurisdictions.

- The area of improved federal/provincial environmental assessment should be addressed and strive to achieve efficient coordination of review procedures.

- Under the Council of Provincial Energy Ministries, British Columbia is taking the lead in preparing a review of provincial environmental assessment procedures, eventually leading to a provincial position with respect to the federal proposed legislation.

RELATED ISSUES

- Through potential Energy Cooperative agreements between British Columbia and Alberta (and the other Western Provinces through the Western Premier's energy initiative) and the Energy Cooperation Agreement between British Columbia and the State of Washington signed April, 1989), coordinated environmental objectives may offer the potential to improve energy planning and the environment (i.e. transboundary fossil fuel emissions).

- Energy coordination with the Western North American power system potentially offers a least-environmental impact resource option, second only to energy conservation.

Energy Export Markets

- California's gas and electricity demand is expected to increase dramatically in the 1990's due to lack of low-cost alternatives, air quality concerns and growth in their economy (at $660 million ($US) the California's economy exceeds Canada's by 20%).

- Currently lack of natural gas pipeline and electricity transmission capacity is constraining export sales, but this is expected to change over the next several years.

- Export of thermal-electricity effectively results in the importation of natural gas and coal combustion emissions.

Electricity Pricing

- The British Columbia Utilities Commission (BCUC) reduced B.C. Hydro's rate application of 3 percent over three years since it believes that price alone is not effective in achieving B.C. Hydro's conservation objectives.

- BCUC ordered B.C. Hydro to make an application for rate design by December 1, 1990 which among other objectives will try to achieve energy conservation through a restructuring of rates.

Repatriation of the Columbia River Treaty Downstream Benefits

- The United States is obligated to return British Columbia's 50% entitlement of the Columbia River Treaty Downstream Benefits (DSBs) starting in 1998 to 2003.

- The transboundary environment implications of British Columbia taking back the DSBs have not been addressed.

Independent Power Producers

- B.C. Hydro and its export subsidiary, Powerex, have issued requests for proposals to supply the domestic and export markets by independent power producers (IPPs).

- IPP projects are listed in the following table representing the most likely projects to proceed - the majority of which are coal, natural gas and biomass-fired thermal generation.

ELECTRICITY GENERATION PROJECTS IN THE 1990s

Project/Company	Location	Capacity (MW)	Type	Capital Cost	Construction Jobs	Operating Jobs
Electricity Generation (IPP, Domestic Market, > 5 MW)						
Mamquam/Highland Energy Systems	Squamish	40	Hydro Run of River	$30 million	10-30	2
McMahon Co-generation/ Westcoast Energy	Taylor	105	Natural Gas Co-generation	$106 million	50-60	15
Williams Lake Woodwaste/ N.W. Energy	Williams Lake	55	Wood-waste	$135 million	190 person years	35
Fording River Power/ Fording Coal	Elkford	112	Coal and Waste Coal Thermal	$140 million	100-500	85
Electricity Generation (IPP, Export, > 50 MW)						
Crownest Co-generation/ Trans-Alta Resources	Crowsnest Pass	85	Natural Gas Co-generation /Combined Cycle	$71 million	N.A.	20
Rosedale Gas Turbine/ Selkirk Power	Near Chilliwack	150	Simple Cycle Gas Turbine	$75 million	92 person years	12-24
Interior Wood-Waste/ Longlake/Dominion	Central Interior	169	Woodwaste Boiler with Gas Turbine Combined Cycle	$170 million	150	25
East Kootenay Thermal/ Westar/Shawnigan Integ	Sparwood	305	Coal and Waste Coal Thermal	$450 million	1000 person years	120
Merritt Power Plant Canadian Occidental/ Energy America	Merritt	220	Combined Cycle Gas turbine	N.A.	150	25